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# CURRENT LITERATURE.

## BOOK REVIEWS.

### Forestry monographs.

THE APPEARANCE of the first elaborate series of monographs[1] on the valuable timber trees of North America, issued by our division of forestry, deserves more than a passing mention. The large volume before us gives evidence of the untiring zeal and patience of the chief of the division, who has been compelled to fight his way against public sentiment, and scanty appropriations, and difficulty of securing proper observations; and also of the laborious work of his collaborators, in collecting and organizing the mass of facts for presentation.

Historically it may be said that the conception and plan of these monographs dates back ten years, when Mr. Fernow, in his first report (1886), pointed out that the first step to rational forest management was to acquire knowledge of the biology of the valuable timber species, and outlined directions for these studies, which we see has been strictly followed in the present series. Mr. Fernow explained from time to time in his reports why these studies, then begun, have been delayed in publication, the difficulty of securing satisfactory field observations, such as the forester would need, being the principal one.

The five pines considered are *P. palustris* (Long-leaf pine), *P. heterophylla* (Cuban pine), *P. echinata* (Short-leaf pine), *P. Taeda* (Loblolly pine), *P. glabra* (Spruce pine), and their discussion proceeds on botanical, geographic, commercial, and strictly forestal lines. A full synonymy both of botanical and vernacular names, the latter with reference to localities where used, precedes a short statement of the economic importance and historic development of the exploitation of the species, followed by a more or less exhaustive description of the geographical distribution of the same. In this latter the commercial features have been made properly prominent throughout the text, as well as in the maps, but as would be natural to such a botanist as Dr. Mohr, the botanical or plant geographical point of view has never been lost sight of. The characteristics of soil, climate, and flora of the different localities in which the species is found are given in considerable detail, accompanied by measurements of tree development, which enable the forester to form an opinion as to the requirements of the species and its capacity for development under different conditions. Tables of statistics showing the progress of exploitation of the forest resource, together with estimates of standing timber in each locality, enable the student of political economy to form an estimate as to the condition and promise of that resource. A peculiarity of the southern pines is that, although they occur over large areas in pure stands, they do not exhibit the heavy yield per acre so common to the northern pineries. The illustrations of Long-leaf and Cuban pine forests remind one of the open park like character of the forests of the Rocky mountain region more than of the northern pineries. It would appear that the most productive areas, as well as the largest uncut territory of Long-leaf pine, is to be found in Louisiana and Texas, where over 700,000 acres, cutting 6000 feet in the average, are said to exist. The most productive Short-leaf and Loblolly pine areas are also to be found west of the Mississippi, north of the Long-leaf pine area.

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[1] MOHR, CHARLES.—The timber pines of the southern United States. Together with a discussion of the structure of their wood, by Filibert Roth. Bulletin no. 13, Division of Forestry, U. S. Department of Agriculture, pp. 160. 1896.

An interesting botanical point is made in an *addendum* to the Long-leaf monograph, in which Dr. Mohr describes a considerable body of commercial timber of this species in the mountains of Clay county, Alabama, at an elevation of little less than 2000 feet. The most elevated point at which the species had been previously known to exist was 1500 feet.

The botanical descriptions, with developmental features added, are clear and complete, and are accompanied by a series of illustrations which for the most part are excellent examples of the wood engravers' art. They are full of natural sized drawings from nature, with enlargements of single parts. If we should find fault with these plates, thoroughly satisfactory to the student, it would be from the artistic point of view, on account of the inartistic curtailment of the long needles which would not go on the plate, although we are at a loss to suggest how to obviate this trouble and yet preserve the natural size on a 7 × 9 page.

Especial attention has been given to a description of the development of the tree through various stages of its life, and its dependence on surrounding conditions, and this is illustrated by a series of measurements of the rate of growth during the periods of development. This feature is probably one of the most important to the lumberman and forester, as it enables him to base on them profit calculations regarding his forest growth, but it is also of interest to the botanist to know the laws of growth which the species follows through its lifetime. The tables of measurement are accompanied by cleverly devised graphic illustrations, which readily show the varying development during each period of ten years.

The concluding pages are devoted to the study of the structure of the wood of the five pines by Mr. Filibert Roth. Botanists have given comparatively little attention to this subject of wood structure, and Mr. Roth's excellent work, the result of five years' steady handling and studying of these woods in connection with the timber tests of the forestry division, is at once instructive and suggestive. The plates accompanying this part, camera lucida drawings, are clear and thoroughly illustrative. So far no constant distinguishing microscopic features of the species have been found.

The value of the publication is undoubtedly enhanced to the practical man, as well as to the student, by the introduction written by Mr. Fernow. While in part it is a resumé of the contents of the volume in most compact form, it is original and most useful in that it institutes a comparison of four species (Long-leaf, Cuban, Short-leaf, and Loblolly) in their botanical, geographical, and biological features, and the mechanical properties of their wood. In the latter phase the most exhaustive series of investigations instituted in the timber physics section of the forestry division have been the basis. The results certainly open an entirely new field of study of the most practical bearing, which curiously enough has never before been undertaken so systematically. The curves showing the comparative rate of growth in diameter, height, and volume, placed the Cuban pine in all cases as the most rapid, as well as persistent grower: the Long-leaf as the slowest, yet persistent, while the Loblolly, and still more the Short-leaf, decline somewhere near the 100th year. This is an important point for future forestry, since we are informed that the Cuban pine, protected by its rapid height growth from the start, is gradually displacing the Long-leaf in its own area.

## NOTES FOR STUDENTS.

THE EXUDATION of gum from grapevine stems has been carefully investigated by Professor E. Ráthay,[1] of the Royal Institution of Enology and Pomology at Klosternenburg near Vienna. He has gone over the literature and studied the malady from the bacteriological, anatomical, and physiological standpoints, and has arrived at the conclusion that the abnormal action is not brought about by bacteria, as asserted by Prillieux, but is due to wound irritation. This irritation induces the formation of tyloses, resulting in the interruption of the continuity of the protoplasm and the premature death of the cells.— J. C. A.

IN A PAPER entitled "Les Hypostomacées, nouvelle Famille de Champignons parasites," Dr. Vuillemin has given an account[2] of two fungi injurious to conifers in France, one of them, which he names *Meria Laricis*, attacking the living leaves of *Larix Europaea*, but producing its fructification after the latter have died and fallen from their attachment; while the

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[1] Ueber das Auftreten von Gummi in der Rebe und über die "Gommose bacillaire." Wien 1896. Pp. 90, with chart.

[2] Bull. d. l. Soc. d. Sciences de Nancy — : 1–55. 1896.